

# Extreme Heat

## **Fear of High Utility Bills Could Worsen Heat-Related Illness This Summer**

Each year more people in the United States die from extreme heat than from hurricanes, lightning, tornadoes, floods, and earthquakes combined. During 1979-1998, a total of 7,421 deaths in the United States were attributed to excessive heat exposure. On average approximately 300 people die each year from exposure to heat. This year extreme heat is of particular concern because of the energy problems facing many areas of the country. Air conditioning is the number-one protective factor against heat-related illness and death. Brownouts that last a few hours will likely have little effect on people's health. However, some people may be fearful of high utility bills and limit their use of air conditioning. Such action can place people who are already at risk for heat illness at increased risk. You can help by learning the warning signs of heat stroke and heat exhaustion and then checking on your neighbors frequently.

## **Temperature Overload**

People suffer heat-related illness when their bodies are unable to compensate and properly cool themselves. The body normally cools itself by sweating. But under some conditions, sweating just isn't enough. In such cases, a person's body temperature rises rapidly. Very high body temperatures may damage the brain or other vital organs.

Several factors affect the body's ability to cool itself during extremely hot weather. When the humidity is high, sweat will not evaporate as quickly, preventing the body from releasing heat quickly. Other conditions that can limit the ability to regulate temperature include old age, youth (age 0-4), obesity, fever, dehydration, heart disease, mental illness, poor circulation, sunburn, and prescription drug use and alcohol use.

Summertime activity, whether on the playing field or the construction site, must be balanced with measures that aid the body's cooling mechanisms and prevent heat-related illness.

## **Beat the Heat this Summer**

### *Tips on Preventing and Managing Heat*

***The best defense is prevention.*** Here are some *prevention tips*:

- Drink more fluids (nonalcoholic), regardless of your activity level. Don't wait until you're thirsty to drink. Warning: If your doctor generally limits the amount of fluid you drink or has you on water pills, ask him how much you should drink while the weather is hot.
- Don't drink liquids that contain caffeine, alcohol, or large amounts of sugar—these actually cause you to lose more body fluid. Also, avoid very cold drinks, because they can cause stomach cramps.

- Stay indoors and, if at all possible, stay in an air-conditioned place. If your home does not have air conditioning, go to the shopping mall or public library—even a few hours spent in air conditioning can help your body stay cooler when you go back into the heat. Call your local health department to see if there are any heat-relief shelters in your area.
- Electric fans may provide comfort, but when the temperature is in the high 90s, fans will not prevent heat-related illness. Taking a cool shower or bath, or moving to an air-conditioned place is a much better way to cool off.

If you must be out in the heat:

- Limit your outdoor activity to morning and evening hours.
- Cut down on exercise. If you must exercise, drink two to four glasses of cool, nonalcoholic fluids each hour. A sports beverage can replace the salt and minerals you lose in sweat. ***Warning: If you are on a low-salt diet, talk with your doctor before drinking a sports beverage. Remember the warning in the first “tip” (above), too.***
- Try to rest often in shady areas.
- Protect yourself from the sun by wearing a wide-brimmed hat (also keeps you cooler) and sunglasses and by putting on sunscreen of SPF 15 or higher (the most effective products say “broad spectrum” or “UVA/UVB protection” on their labels).
- Wear lightweight, light-colored, loose-fitting clothing.
- ***NEVER*** leave anyone in a closed, parked vehicle.
- ***Although any one at any time can suffer from heat-related illness, some people are at greater risk than others. Check regularly on:***
  - Infants and young children
  - People aged 65 or older
  - People who have a mental illness
  - Those who are physically ill, especially with heart disease or high blood pressure

***Visit adults at risk at least twice a day and closely watch them*** for signs of heat exhaustion or heat stroke. Infants and young children, of course, need much more frequent watching.

### **Disclaimer**

These self-help measures are not a substitute for medical care but may help you recognize and respond promptly to warning signs of trouble. Your best defense against heat-related illness is prevention. Staying cool and making simple changes in your fluid intake, activities, and clothing during hot weather can help you remain safe and healthy.

### **Hot Weather Health Emergencies**

Even short periods of high temperatures can cause serious health problems. Two common problems are heat stroke and heat exhaustion.

#### **Heat Stroke**

Heat stroke occurs when the body is unable to regulate its temperature. The body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. Body temperature may rise to 106°F or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not provided.

#### *Recognizing Heat Stroke*

Warning signs of heat stroke vary but may include the following:

- An extremely high body temperature (above 103°F, orally)
- Red, hot, and dry skin (no sweating)
- Rapid, strong pulse
- Throbbing headache
- Dizziness
- Nausea
- Confusion
- Unconsciousness

#### *What to Do*

If you see any of these signs, you may be dealing with a life-threatening emergency. Have someone call for immediate medical assistance while you begin cooling the victim. Do the following:

- Get the victim to a shady area.

- **Cool the victim rapidly using whatever methods you can.** For example, immerse the victim in a tub of cool water; place the person in a cool shower; spray the victim with cool water from a garden hose; sponge the person with cool water; or if the humidity is low, wrap the victim in a cool, wet sheet and fan him or her vigorously.
- Monitor body temperature, and continue cooling efforts until the body temperature drops to 101-102°F.
- If emergency medical personnel are delayed, call the hospital emergency room for further instructions.
- Do not give the victim alcohol to drink.
- Get medical assistance as soon as possible.

Sometimes a victim's muscles will begin to twitch uncontrollably as a result of heat stroke. If this happens, keep the victim from injuring himself, but do not place any object in the mouth and do not give fluids. If there is vomiting, make sure the airway remains open by turning the victim on his or her side.

## **Heat Exhaustion**

Heat exhaustion is a milder form of heat-related illness that can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids. Those most prone to heat exhaustion are elderly people, people with high blood pressure, and people working or exercising in a hot environment.

### *Recognizing Heat Exhaustion*

Warning signs of heat exhaustion include the following:

- Heavy sweating
- Paleness
- Muscle cramps
- Tiredness
- Weakness
- Dizziness
- Headache
- Nausea or vomiting
- Fainting

The skin may be cool and moist. The victim's pulse rate will be fast and weak, and breathing will be fast and shallow. If heat exhaustion is untreated, it may progress to heat stroke. Seek medical attention immediately if any of the following occurs:

- Symptoms are severe.

- The victim has heart problems or high blood pressure.

Otherwise, help the victim to cool off, and seek medical attention if symptoms worsen or last longer than 1 hour.

#### *What to Do*

Cooling measures that may be effective include the following:

- Cool, nonalcoholic beverages, as directed by your physician
- Rest
- Cool shower, bath, or sponge bath
- An air-conditioned environment
- Lightweight clothing

### **Heat Cramps**

Heat cramps usually affect people who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture. The low salt level in the muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion.

#### *Recognizing Heat Cramps*

Heat cramps are muscle pains or spasms — usually in the abdomen, arms, or legs — that may occur in association with strenuous activity. If you have heart problems or are on a low-sodium diet, get medical attention for heat cramps.

#### *What to Do*

If medical attention is not necessary, take these steps:

- Stop all activity, and sit quietly in a cool place.
- Drink clear juice or a sports beverage.
- Do not return to strenuous activity for a few hours after the cramps subside, because further exertion may lead to heat exhaustion or heat stroke.
- Seek medical attention for heat cramps if they do not subside in 1 hour.

### **Sunburn**

Sunburn should be avoided because it damages the skin. Although the discomfort is usually minor and healing often occurs in about a week, a more severe sunburn may require medical attention.

#### *Recognizing Sunburn*

Symptoms of sunburn are well known: skin becomes red, painful, and abnormally warm after sun exposure.

### *What to Do*

Consult a doctor if the sunburn affects an infant younger than 1 year of age or if these symptoms are present:

- Fever
- Fluid-filled blisters
- Severe pain

Also, remember these tips when treating sunburn:

- Avoid repeated sun exposure.
- Apply cold compresses or immerse the sunburned area in cool water.
- Apply moisturizing lotion to affected areas. Do not use salve, butter, or ointment.
- Do not break blisters.

## **Heat Rash**

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather. It can occur at any age but is most common in young children.

### *Recognizing Heat Rash*

Heat rash looks like a red cluster of pimples or small blisters. It is more likely to occur on the neck and upper chest, in the groin, under the breasts, and in elbow creases.

### *What to Do*

The best treatment for heat rash is to provide a cooler, less humid environment. Keep the affected area dry. Dusting powder may be used to increase comfort, but avoid using ointments or creams — they keep the skin warm and moist and may make the condition worse.

Treating heat rash is simple and usually does not require medical assistance. Other heat-related problems can be much more severe.

## Frequently Asked Questions for Extreme Heat

1. ***What happens to the body as a result of exposure to extreme heat?***

People suffer heat-related illness when the body's temperature control system is overloaded. The body normally cools itself by sweating. But under some conditions, sweating just isn't enough. In such cases, a person's body temperature rises rapidly. Very high body temperatures may damage the brain or other vital organs. Several factors affect the body's ability to cool itself during extremely hot weather. When the humidity is high, sweat will not evaporate as quickly, preventing the body from releasing heat quickly. Other conditions that can limit the ability to regulate temperature include old age, youth (age 0-4), obesity, fever, dehydration, heart disease, mental illness, poor circulation, sunburn, and prescription drug use and alcohol use.

2. ***Who is at greatest risk for heat-related illness?***

Those at greatest risk for heat-related illness include infants and children up to four years of age, people 65 years of age and older, people who are overweight, and people who are ill or on certain medications.

3. ***What is heat stroke?***

Heat stroke is the most serious heat-related illness. It occurs when the body becomes unable to control its temperature: the body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. Body temperature may rise to 106°F or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not provided.

4. ***What are the warning signs of a heat stroke?***

Warning signs of heat stroke vary but may include the following:

- An extremely high body temperature (above 103°F)
- Red, hot, and dry skin (no sweating)
- Rapid, strong pulse
- Throbbing headache
- Dizziness
- Nausea
- Confusion
- Unconsciousness

5. ***What should I do if I see someone with any of the warning signs of heat stroke?***

If you see any of these signs, you may be dealing with a life-threatening emergency. Have someone call for immediate medical assistance while you begin cooling the victim. Do the following:

- Get the victim to a shady area.

- Cool the victim rapidly, using whatever methods you can. For example, immerse the victim in a tub of cool water; place the person in a cool shower; spray the victim with cool water from a garden hose; sponge the person with cool water; or if the humidity is low, wrap the victim in a cool, wet sheet and fan him or her vigorously.
- Monitor body temperature and continue cooling efforts until the body temperature drops to 101-102°F.
- If emergency medical personnel are delayed, call the hospital emergency room for further instructions.
- Do not give the victim alcohol to drink.
- Get medical assistance as soon as possible.

6. ***What is heat exhaustion?***

Heat exhaustion is a milder form of heat-related illness that can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids. Those most prone to heat exhaustion are elderly people, those with high blood pressure, and those working or exercising in a hot environment.

7. ***What are the warning signs of heat exhaustion?***

The warning signs of heat exhaustion include the following:

- Heavy sweating
- Paleness
- Muscle cramps
- Tiredness
- Weakness
- Dizziness
- Headache
- Nausea or vomiting
- Fainting

The skin may be cool and moist. The pulse rate will be fast and weak, and breathing will be fast and shallow. If heat exhaustion is untreated, it may progress to heat stroke. See medical attention if symptoms worsen or last longer than one hour.

8. ***What steps can be taken to cool the body during heat exhaustion?***

Drink cool, nonalcoholic beverages.

- Rest.
- Take a cool shower, bath, or sponge bath.
- Seek an air-conditioned environment.
- Wear lightweight clothing.



9. ***What are heat cramps and who is affected?***

Heat cramps are muscle pains or spasms – usually in the abdomen, arms, or legs – that may occur in association with strenuous activity. People who sweat a lot during strenuous activity are prone to heat cramps. This sweating depletes the body's salt and moisture. The low salt level in the muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion. If you have heart problems or are on a low-sodium diet, seek medical attention for heat cramps.

10. ***What should I do if I have heat cramps?***

If medical attention is not necessary, take the following steps:

- Stop all activity and sit quietly in a cool place.
- Drink clear juice or a sports beverage.
- Do not return to strenuous activity for a few hours after the cramps subside because further exertion may lead to heat exhaustion or heat stroke.
- Seek medical attention for heat cramps if they do not subside in 1 hour.

11. ***What is heat rash?***

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather. It can occur at any age but is most common in young children. Heat rash looks like a red cluster of pimples or small blisters. It is more likely to occur on the neck and upper chest, in the groin, under the breasts, and in elbow creases.

12. ***What is the best treatment for heat rash?***

The best treatment for heat rash is to provide a cooler, less humid environment. Keep the affected area dry. Dusting powder may be used to increase comfort, but avoid using ointments or creams — they keep the skin warm and moist and may make the condition worse.

13. ***Can medications increase the risk of heat-related illness?***

The risk for heat-related illness and death may increase among people using the following drugs: (1) psychotropics, which affect psychic function, behavior, or experience (e.g. haloperidol or chlorpromazine); (2) medications for Parkinson's disease, because they can inhibit perspiration; and (3) tranquilizers such as phenothiazines, butyrophenones, and thiozanthenes.

14. ***How effective are electric fans in preventing heat-related illness?***

Electric fans may provide comfort, but when the temperature is in the high 90s, fans will not prevent heat-related illness. Taking a cool shower or bath or moving to an air-conditioned place is a much better way to cool off. Air conditioning is the strongest protective factor against heat-related illness. Exposure to air conditioning for even a few hours a day will reduce the risk for heat-related illness. Consider visiting a shopping mall or public library for a few hours.

15. ***How can people protect their health when temperatures are extremely high?***

Remember to keep cool and use common sense. Drink plenty of fluid, replace salts and minerals, wear appropriate clothing and sunscreen, pace yourself, stay

cool indoors, schedule outdoor activities carefully, use a buddy system, monitor those at risk, and adjust to the environment.

**16. *How much should I drink during hot weather?***

During hot weather you will need to drink more liquid than your thirst indicates. Increase your fluid intake, regardless of your activity level. During heavy exercise in a hot environment, drink two to four glasses (16-32 ounces) of cool fluids each hour. Avoid drinks containing alcohol because they will actually cause you to lose more fluid.

**17. *Should I take salt tablets during hot weather?***

Do not take salt tablets unless directed by your doctor. Heavy sweating removes salt and minerals from the body. These are necessary for your body and must be replaced. The easiest and safest way to do this is through your diet. Drink fruit juice or a sports beverage when you exercise or work in the heat.

**18. *What is the best clothing for hot weather or a heat wave?***

Wear as little clothing as possible when you are at home. Choose lightweight, light-colored, loose-fitting clothing. In the hot sun, a wide-brimmed hat will provide shade and keep the head cool. If you must go outdoors, be sure to apply sunscreen 30 minutes prior to going out and continue to reapply according to the package directions. Sunburn affects your body's ability to cool itself and causes a loss of body fluids. It also causes pain and damages the skin.

**19. *What should I do if I work in a hot environment?***

Pace yourself. If you are not accustomed to working or exercising in a hot environment, start slowly and pick up the pace gradually. If exertion in the heat makes your heart pound and leaves you gasping for breath, STOP all activity. Get into a cool area or at least in the shade, and rest, especially if you become lightheaded, confused, weak, or faint.